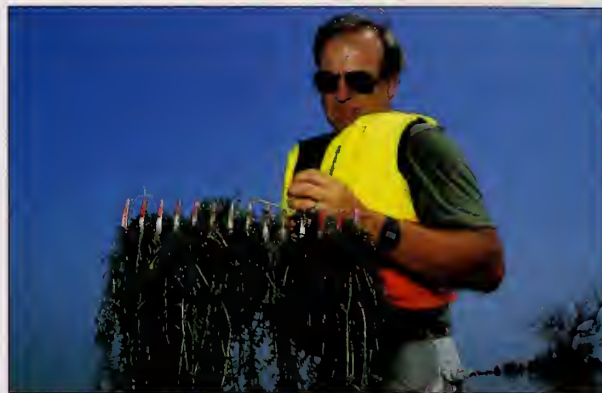


VIRGINIA WILDLIFE

OCTOBER 1994

ONE DOLLAR





Hydrilla is becoming a major headache for some in Virginia waters. Read more about the good, bad, and ugly faces of aquatic vegetation beginning on page 3; photo by Dwight Dyke.

VIRGINIA WILDLIFE



Cover: C.E. Howdyshell, Jr. is keeping the spirit of the mountain man and the tradition of blackpowder hunting alive in Virginia. Turn to page 12 for details; photo by Dwight Dyke. Back cover: White-tailed deer; photo by Bill Lea.

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Dedicated to the Conservation of Virginia's Wildlife and Natural Resources

Aquatic Vegetation

The Good, the Bad
and the Ugly



Hydrilla



Dwight Dyke

by William B. Kittrell, Jr.

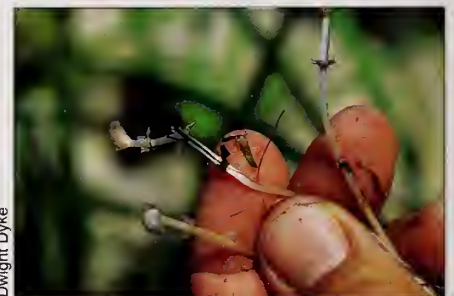
Perhaps no other topic conjures up as much emotion among anglers, boaters, and property owners as does hydrilla. Avid fishermen see the satisfying image of a plastic worm fluttering down the edge of a hydrilla mat into the mouth of a hungry bass. Recreational boaters feel the frustration of leaning over the transom of their boats while straining to tear a tangled mess from the propeller. Homeowners fear the possibility of falling property values as they gaze across a green carpet of hydrilla adjacent to their boat docks.

Each has a decidedly different point of view, and each will readily share his or her opinion on the subject. As a fisherman, recreational boater and homeowner, I understand their concerns. As a biologist and resource manager, I feel the anxiety of often being caught in the

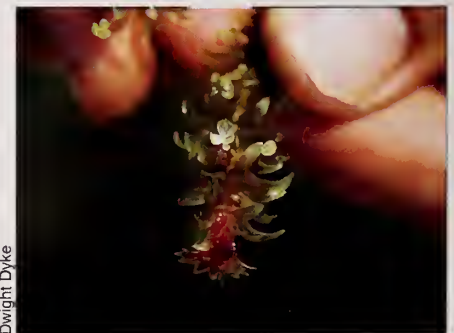
cross fire between opposing viewpoints.

To understand this ever-growing and controversial debate, one must first understand hydrilla. What is hydrilla, and where did it come from? Hydrilla (*Hydrilla verticillata*) is an exotic species of aquatic vegetation native to warmer regions of the world such as Asia, Africa and South America. Since its discovery in Florida in 1960, hydrilla has spread rapidly throughout the Southeast and as far north as Maryland and Delaware. Virginia didn't escape the invasion, and major infestations can be found in the Potomac River, Lake Anna, Lake Gaston and Buggs Island Lake.

There is evidence of at least two hydrilla introductions into the United States because at least two different forms occur. The introduction into Florida was thought to have been made by the aquarium industry, interested in the plant as a sales



Dwight Dyke



Dwight Dyke

Hydrilla can be an angler's dream or a boater's worst nightmare (top). An aggressive exotic, it reproduces easily from fragments, tubers (middle), flowers (above), and turions.

item. This population is female, as are all populations observed as far north as South Carolina. All populations above South Carolina (including Virginia) tend to be monoecious (both male and female flowers on the same plant).

Hydrilla can be difficult to identify. Its appearance can vary considerably under different growing conditions, and it is easily confused with Brazilian elodea and common elodea which occur throughout Virginia. Hydrilla grows submerged in water and generally is rooted to the bottom, although fragments break loose and survive in a free floating state. Erect stems can grow quite long (easily reaching 10-15 feet) in Virginia's clearer waters. Branching is usually sparse until the plant approaches the water's surface, then branching can become profuse. Leaves on the stem form whorls with usually more than 3 leaves per whorl. The leaf edges have sharp teeth, and tiny spines occur on the underside of the leaf midrib. Because of this, hydrilla often feels coarse when drawn through the fingers. Hydrilla produces vegetative

moderate densities, it increases the amount of fish habitat by providing cover and nursery areas for small fish and invertebrates. This in turn creates feeding areas which attract larger predators such as largemouth bass and chain pickerel. Any bass angler worth his salt will tell you that submerged structure holds fish, whether it's a sunken tree or vegetation. In hydrilla, fish are typically concentrated along the edges of hydrilla mats or in holes or pockets often found in newly developing infestations. Taking advantage of this fact can increase an angler's catch.

Submerged aquatic vegetation constitutes the principal source of food for waterfowl. Hydrilla, when available, is readily eaten by waterfowl. Like other aquatic plants, hydrilla produces oxygen through photosynthesis, stabilizes sediment, stores nutrients and retards algal blooms. Several of these attributes tend to clear the water where the infestation occurs. In degraded systems which are devoid of vegetation, the addition of any plants can be positive. On the Potomac River, for example, significant improve-

The Bad

On the other hand, hydrilla could probably be characterized as the aquatic version of kudzu. All aquatic plants have adapted to life in the water, but hydrilla seems to be far ahead of the rest. Hydrilla has the potential to grow up to *one inch per day* under optimum conditions.

As it nears the water's surface, it branches profusely. This characteristic allows it to intercept 95% of the sunlight in the top one foot of the water column, thereby shading out other aquatic plants. This effectively eliminates many beneficial native plants such as pondweeds and eelgrass. The result is often a monotypic (one species) plant community made up solely of hydrilla.

A reduction of species diversity of this kind is never good for an ecosystem. As hydrilla reaches the surface, it can "top out," forming a dense mat which is virtually impenetrable to boats and swimmers. In excessive amounts, hydrilla can interfere with fishing, foul shorelines, create a breeding ground for mosquitos, and reduce water storage capacities. In some cases, hydrilla can degrade water quality as large mats decompose. These same mats, upon breaking loose from the bottom, have been responsible for expensive operational shutdowns at hydroelectric facilities across the Southeast.

Hydrilla is very efficient at reproducing and surviving under adverse conditions. It can reproduce in four different ways: by fragmentation, tubers, turions, and seeds. A tiny fragment can potentially sprout a new plant. This means that small amounts on boat trailers, live wells, or dumped from aquariums can easily spread the plant from one location to another.

Tubers are specialized pea-sized structures which can withstand adverse conditions such as cold-water temperatures in the winter and drying out during the summer. Then, when conditions are favorable again, a new plant will emerge. Turions are compact dormant buds produced at the base of leaves, falling



Susan M. Glascock

reproductive structures called turions and tubers which can also help to identify the species.

The Good

Hydrilla, like native aquatic plants, can provide beneficial functions in the aquatic environment. At



Susan M. Glascock

Note the difference between the smooth leaf edges of elodea (left) and toothed leaf edges of hydrilla (right). These two species are often confused with one another.

ments in the aquatic ecosystem associated with hydrilla and other aquatic plants have been reported.

from the plant when they mature.

All these characteristics mean that hydrilla can rapidly spread throughout infested waters. For example, in 1985, 12 acres of hydrilla were known to exist in Lake Gaston. By 1993, these 12 acres had expanded to 1,425 acres. Most of this acreage is near the shoreline or in relatively shallow water. This also happens to be the place where most recreationists converge. Although there are other species of exotic aquatic vegetation that can cause problems, hydrilla is one bad plant.

The Ugly

Since hydrilla is an exotic species, there are few naturally occurring limiting factors. This, combined

close to water intakes, navigation trails in dense mats, or when immediate results are required. The main disadvantage is the high cost, which could escalate up to \$2,000/acre. In addition, this method is ineffective in shallow water where stumps and debris cover the bottom. Also, since fragmentation causes hydrilla to



Rick Eades

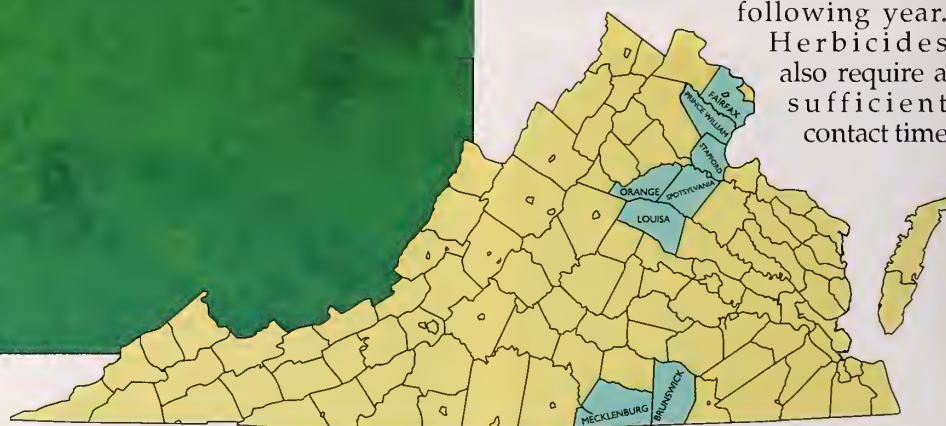


Hal Horwitz

with hydrilla's tremendous reproductive and growth capabilities, makes it extremely difficult to control. Currently, there are only three methods of control that are effective on a large scale. These methods are mechanical, chemical and biological. Each has its advantages and disadvantages.

The mechanical method usually involves a harvester of some form cutting the hydrilla off below the water's surface. This is a good alternative when other methods cannot be used. Examples where this method would be effective are areas

The map above details the counties with waters in which major hydrilla infestations exist: Potomac River, Lake Anna (photo above), Lake Gaston, and John H. Kerr Reservoir (Buggs Island Lake). (Although the infestation at Kerr Reservoir is relatively small at 8 acres, it was included because of its potential for expansion.) The introduction of sterile grass carp (top) into infested waters is sometimes an effective tool at controlling hydrilla. Right: Hydrilla can spread easily through fragmentation, thus it is important to dispose of cut hydrilla properly.



spread, all the solid waste that is cut has to be disposed of in an appropriate manner. Plus, juvenile fish and aquatic invertebrates often are removed with the hydrilla. Finally, this method is labor intensive, and only a few acres can be mowed each day. Hydrilla can easily regrow what has been lost to harvesting, and multiple cuttings may be necessary in a single season.

Chemical control involves the use of approved aquatic herbicides to kill hydrilla. Chemicals are commonly used by authorities to manage and control undesirable submerged aquatic plants across the United States. A large area can be treated with herbicides rather quickly and effectively at a much lower cost than mechanical methods. And, desired results can occur rapidly.

The down side to aquatic herbicides is that there are water-use restrictions associated with their use. In addition, as is the case with harvesting, the results are usually temporary and reapplication would probably be required the following year.

Herbicides also require a sufficient contact time

and cannot be used in flowing water. Therefore, best results are usually achieved in quiet waters where little or no water exchange occurs. (Note: Only licensed commercial applicators should ever attempt to use aquatic herbicides. There are penalties associated with herbicide misuse, and any fish kills or other environmental damage that could result from their misuse.)

Biological control encompasses several strategies which use agents

Additional Sources of Information about Hydrilla:

Virginia Department of Game & Inland Fisheries
Fish Division
4010 W. Broad Street
Richmond, Virginia 23230-1104

Hydrilla: A Rapidly Spreading Aquatic Weed in North Carolina

Publication AG-449

North Carolina Cooperative Extension Service
North Carolina State University
Raleigh, North Carolina 27695

Hydrilla: A Continuing Problem in Florida Waters
Circular No. 884

Cooperative Extension Service
Institute of Food and Agricultural Sciences
University of Florida
Gainesville, Florida 32606

are long-term control and affordability. However, the fish is voracious and will consume many types of submerged and some emergent aquatic vegetation. Escapement is a possibility, and there is some concern that these long-lived fish could cause damage to natural ecosystems. Stocking rates for partial control have not been well established; therefore, triploid grass carp are infrequently used in large, multipurpose lakes where aquatic vegetation is desirable for sportfish and waterfowl habitat.

The best management plan for an infested water body may involve one or more of these control options. Every body of water is different and what works on one system may not work on another. The Department of

and want no control. Some want hydrilla controlled by a particular method. Still others dislike any plant in the water and want everything that is green and growing to disappear regardless of the method. The debate will continue, but the facts cannot be denied. With no control, hydrilla will continue to leapfrog from one water body to another and may eventually be coming to a pond, lake, or stream near you.

Some readers may have made up their minds already that hydrilla is a problem for a select few, and really doesn't affect them. Unfortunately, that's not true. Whether you know it or not, you are paying for hydrilla control, and it is a very expensive proposition. In Virginia, well-established colonies of hydrilla already exist in the Potomac River, Lake Anna, Lake Gaston and Buggs Island Lake, and control costs are mounting. The bulk of these control costs are paid by local, state, and federal tax dollars. Millions of dollars are spent annually in Florida alone to manage this plant. Unless the objective of everyone involved is to effectively manage hydrilla in infested waters and to prevent its spread to new waters, these costs will continue to climb.

Unfortunately, many exotic introductions occur either through ignorance or carelessness. This is especially true for hydrilla. Education will be the key to successfully managing exotic plants.

As is the case with other exotics, prevention is the best medicine. There are a few simple precautions that everyone can take. Always check your boat trailer, motor and live well for plant fragments before leaving an infested body of water. Remove these fragments and properly dispose of them. Inform others about the problems associated with spreading hydrilla to new waters and the benefit of native plants. Through proper education and a little common sense, you can help to repel the hydrilla invasion. □

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Dwight Dyke

such as insects, fish, and diseases which naturally suppress hydrilla. The most commonly used biological control is the triploid grass carp or white amur. This sterile, herbivorous fish is routinely used in Virginia by private pond owners to control submerged vegetation problems.

Hydrilla is a preferred food of the grass carp, and a high stocking rate can result in complete eradication. The advantages of using grass carp

Game and Inland Fisheries recognized this fact, and in conjunction with the Department of Environmental Quality, developed a statewide hydrilla management plan. This plan describes in detail problem infestations across the Commonwealth and prescribes specific control strategies for each area.

Nevertheless, the controversy among user groups is growing because each views hydrilla in a different way. Some people like hydrilla

More on Bad and

The rest of the story

by Rick Eades and
Ed Steinkoenig

While hydrilla makes the headlines as it spreads across the state's waterways, thousands of Virginians are dealing with other types of aquatic vegetation in their own backyards. With few exceptions, every lake, pond, slough or ditch in Virginia has some type of aquatic life in it, and more often than not it includes aquatic plants and algae. With acceptable water quality, available nutrients and some sunshine, any body of water can support aquatic vegetation—sometimes, too much!



Hal Horwitz

As a pond owner, you must determine the primary purpose of the pond. For example, was it built for swimming or fishing or a source of water for cattle and other livestock? Perhaps a combination of these uses?

As a general rule, fishing ponds are most productive when they have aquatic vegetation growing in them. However, a pond built for swimming and boating should be weed-free. Multi-use ponds should support aquatic vegetation densities between 10 and 20 percent of the pond's area.

Anglers sometimes complain about getting their lures caught up

Good, Uglies...



Milfoil (above, submerged and right, top) is an example of submerged aquatic vegetation (SAV)—and ducks love it! Filamentous algae (bottom left) grows unnoticed along the bottom of the pond, only to float to the surface after dying. It must be manually removed or allowed to decompose.

rated into three general types: 1) *Submerged aquatic vegetation* (SAV) is rooted, vascular plants that grow completely underwater or just up to the water surface. Examples include hydrilla, milfoil and elodea. 2) *Floating plants* may or not be rooted to the pond bottom, but all have their leaves floating on top of the water surface. Examples are water lilies and duckweed. 3) *Emergent plants* are rooted to the pond bottom but most of the plant is growing up out of the water. Examples are cattail and pickerelweed. (Filamentous algae such as muskgrass resembles an aquatic plant, but has no roots or true leaves.)

When aquatic vegetation growth exceeds more than 50% of a pond's surface area, the pond owner should start thinking about possible ways to control the growth of the plants and reduce it to more desirable levels. The best method of control will depend on several factors: the types of plants growing, the size of the pond, pond construction, and the purpose or use of the pond. Control can be achieved by mechanical, chemical or biological methods or any combination of these methods.

Mechanical control methods include mowing, cutting or raking the aquatic vegetation. Mechanical methods work well on emergent plants such as cattails which can be cut down periodically or pulled up out of the pond bottom. Free-floating plants such as duckweed can be raked up on shore on days when the wind piles the plants up along one shoreline.

Mechanical methods do not work well on submerged plants (such as hydrilla) and cutting many of these plants can actually make the problem worse as cut fragments can grow roots and cause the plants to spread even more.

Mechanical methods are generally labor-intensive and produce only short-term controls. Most plants will grow back what has been cut fairly quickly. If the pond spillway was built with the ability to control the water level in the pond, winter drawdowns are an effective means of killing some of the vegetation in

shallow waters. Lowering the water two or three feet each winter exposes the plant root systems to freezing, thawing and drying out, eventually killing the plants.

Chemical controls (herbicides) will work on all aquatic plants and algae. However, they too are short-term, expensive and often require several treatments. Different chemicals are used for different vegetation types. For submerged vegetation, chemicals can be added to the water throughout the pond or in specific areas such as boat ramps or swimming areas. For floating and emergent plants, the chemicals must be sprayed directly on the plant leaves. To control most algae, chemicals are sprayed over the pond surface. Properly applied, chemicals will quickly kill unwanted plants.



Dwight Dyke



Susan M. Glascock



Hal Horwitz

Pickerelweed (middle) is an emergent aquatic plant, which is rooted to the pond bottom, whereas duckweed (above) is a floating plant. Here a single duckweed plant is displayed on a thumbnail.

"Properly applied" is the key phrase here. Properly applied means following the manufacturer's directions *exactly* as written. For example, an extra ounce of chemical per gallon of water may kill fish and other aquatic life. Applying chemicals at the wrong time of year may also cause fish kills because of oxygen depletion. The use of some chemicals may not be possible in ponds used for irrigation or livestock watering.

Biological control has grown in popularity in recent years with the development of the sterile triploid grass carp. This fast-growing fish feeds exclusively on aquatic vegetation and can keep it under control for several years. Being sterile, these fish are not able to reproduce and become overpopulated.

Pond owners throughout Virginia have stocked triploid grass carp in their ponds over the past 10 years. A recent VDGIF study reported that the majority of pond owners have had good results using grass carp to control excessive vegetation in their ponds.

The triploid grass carp work especially well on most submerged aquatic vegetation. They prefer feeding on soft, leafy plants and those growing in deeper water. Grass carp are a warmwater fish and will discontinue feeding when the pond water temperature drops below 50 degrees. They are less useful for controlling the floating plants (duckweed) and are not recommended for the emergent plants.

Triploid grass carp should be stocked at a rate of eight fish per vegetated acre to reduce/control SAV's, and a permit must be obtained from the Department of Game and Inland Fisheries before stocking. If the pond owner wants complete removal of the vegetation in the pond, as in ponds used for irrigation rather than fishing, the rate should be doubled to 16 fish per vegetated acre. The rate should also be doubled if the pond owner wants to control floating plants.

Small grass carp are vulnerable to predation by largemouth bass and other fish, as well as birds, otters and other predators commonly found in



Dwight Dyke



Susan M. Glascock

Aquatic plants like water lilies (top), cattails (above), and duckweed (right, with wood duck) are vital to thriving fish and waterfowl populations, but for some boaters and swimmers, too much of a good thing can prove troublesome. When that happens, pond owners can control the aquatic vegetation on their property by biological, chemical, and mechanical means.

and around ponds. If numerous large predators are present in a pond, grass carp use may not be practical.

Grass carp prefer rivers to ponds and are attracted to flowing water. If water spills out of a pond after a

heavy rain, the carp may escape over the spillway. Installing a screen over spillway pipes will keep the fish in a pond.

Sometimes a combination of control methods will work better and faster. A heavily vegetated pond can be treated with chemicals first to reduce the amount of vegetation in the pond and then stocked with fewer grass carp to keep the vegetation under control. In ponds with several types of vegetation, triploid grass carp can be stocked to control SAV's, and mechanical or chemical control methods can be used on the emergent and floating plants.

Another consideration in vegetation control is *dead plants*. Obviously a pond filled with dead plants is no better than a pond filled with live ones. While chemicals will kill plants, they will not dissolve them. Pond owners should realize that just killing unwanted vegetation doesn't immediately solve their problem. The dead plants will eventually decompose, but there may be a period of time when the pond will be rather unsightly. If plants are controlled by mechanical methods, the pond



owner must deal with disposing of the cut plants or have decomposing piles of vegetation around the pond. By using grass carp, the pond owner avoids this situation. Instead of dead plants, the pond has some big fish (grass carp are reaching 40 pounds in some Virginia waters) swimming around.

The pond owner should also avoid trying to kill what's already dead or dying. Some pond owners will report a problem of large mats of algae or plants floating on the surface of their pond, particularly in midsummer and late fall. Many times this will be filamentous algae which was growing unnoticed along the bottom of the pond, only to float to the surface after dying. These must be manually removed or allowed to decompose. Applying chemicals will not serve any purpose. Stocking grass carp will not help either except to help prevent re-occurrences in future years. □

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OCTOBER 1994

Joe MacHudspeth



The Spirit of Hunt



by Bob Gooch
photos by Dwight Dyke

The skies were beginning to clear after a late afternoon shower. The sun had already dipped behind the blue Appalachian Mountains, and I had promised my wife I would be home early. But the interesting visit with Rhonda and C. E. Howdyshell, Jr. had lasted longer than I had expected. Now, in the gathering dusk I was climbing into my 4X4 and looking for a place to turn around.

"Back over toward the teepee poles," said C. E., pointing to approximately a dozen long and weathered poles resting on a rack at the edge of his yard.

Teepee poles? What an appropriate finale for my lingering visit. Rhonda and C. E. are members of the American Mountain Man Association, and the poles served as a symbol of their fascination with frontier culture. A teepee is their home on hunting or camping trips—or mountain man rendezvous. An avocation for both, such events are also a vocation for Rhonda, a public relations director

for the Museum of American Frontier History in Staunton.

"The museum actually stresses frontier living more than guns, but guns are recognized as a vital tool in the lives of the frontiersmen and their families," said Rhonda. The museum is publicly owned, "but approximately 50 percent of our financing comes from private sources," she added turning her attention to some venison steaks sizzling on an outdoor grill.

I had come to discuss muzzleloading hunting, and as C. E., or "Root Hog," as he is fondly called by

ing Past

In Augusta County, C.E. Howdysshell, Jr. is being true to the tradition of blackpowder hunting.

Above: C. E. Howdysshell, Jr. of Augusta County is a Virginia Hunter Education Instructor who enjoys passing on the tradition of the mountain man and muzzleloading to the next generation of sportsmen in the state. Right: There are approximately 600 members of the American Mountain Men in Virginia, of which C. E. Howdysshell, Jr. (far right), and his wife Rhonda (far left) are a part, along with friends Jim and Iris Berry. The group is actively keeping alive the American hunting heritage with the reenactment of mountain man rendezvous. Slipping back in time to relive the frontier past, members gather at such events, abiding strictly to traditional ways of living, from hunting with muzzleloaders in traditional, handmade garb, to the use of teepees.

fellow muzzleloading fans, and I settled into comfortable chairs on the cool side porch, I began pumping him.

I'm a muzzleloading hunter myself, but still have a lot to learn about

this fascinating way of hunting. C. E., however, has been hunting with muzzleloaders for years. He is an active member of the National Muzzle Loading Rifle Association, and an avid reader of the organization's official magazine *Muzzle Blasts*. He gave me a couple of copies of the magazine as I left.

"Do you use pyrodex?" I asked. I preferred that over black powder.

"Nope. Never hunt with anything but a flintlock and black powder," he said. With that settled, we went on. I happen to own a percussion muzzleloader, but was considering adding a flintlock to my collection.

"Guns have always been a strong part of my heritage," he said. "Most of the men in my family were hunters with a love for guns. Some were gunsmiths."

C. E. himself has built several muzzleloaders. His background also includes two tours in Vietnam with the Marine Corps. He is now a federal policeman. Rhonda's mother was also a Marine, but unlike C. E. who grew up in rural Augusta County, she spent much of her youth in Washington, D.C., moving to Augusta when she and C. E. were married.

"Flintlocks came into popularity in America around 1700, and they have changed little over the years. The rifle was fine-tuned to perfection by then," C. E. volunteered.

"One thing that concerns me,"

said Howdysshell, "is the proliferation of cheap muzzleloaders being sold over the counter today. Both flintlocks and percussion rifles. Discount stores stock them, and the buyer gets little or no instruction in their use." C. E. considers cheap percussion rifles particularly dangerous.

True muzzleloading fan that he is, C. E. shoots round balls only. "No maxi balls or sabots," he insisted. He considers 50 and 54 calibers the best for deer, and prefers the 54 caliber. "I've never shot a deer with a 54 caliber that didn't drop on the spot. Those hit with 50 calibers sometimes run off before falling. You have to track them down."

"Some deer hunters shoot 45 calibers," he noted. "Too light for deer. I hunt squirrels with 45 calibers, and once shot a turkey at 75 paces with one. I try for head shots on squirrels. I bag a dozen or so a year. We don't shoot anything we can't use." A code the mountain men lived by.

Howdysshell says he considers 100 yards about the limit for deer with a muzzleloader. "I did shoot one at 130 paces with my 54 caliber, but don't recommend it."

"All of my shooting is offhand," he said. "I don't like a rest, and I shoot with both eyes open. A muzzleloader should be sighted in the same way."

One thing that hunting with a muzzleloader does is make the rifleman choose his shots more carefully,





and try for a well-placed shot. "You get only one shot. You have to be a better hunter. You don't see any of that wild shooting where a hunter may empty his semi-automatic rifle and never touch the deer."

Howdyshell spends a lot of time on the range working with other muzzleloading hunters and target shooters. Particularly beginners.

"One thing I've learned is that most shooters load too much powder. I recommend beginning with 50 grains and working up to what you are comfortable with. I try to emphasize that, but some hunters won't listen."

Flintlock rifles saw heavy use from the French and Indian War until the settling of the Rocky Mountains west.

"Percussion rifles came along about 1820," said C. E. "Their early use was pretty much limited to eastern America. You didn't see them much west of the Mississippi initial-

ly. Replacement of percussion caps presented a problem. Lose them and St. Louis was the closest source of supply. But you could always find plenty of flint in the West. If flint wasn't available, you could use obsidian or chert. Chert was a cheap grade of flint, but it worked."

"We shoot black powder only. No pyrodex," he repeated.

There are approximately 600 members of the American Mountain Men in Virginia. It's an active organization with its members meeting often in rendezvous.

"Buckskin clothing is popular, but we dress according to the period we want to recreate. We make our own clothing." No baseball caps when the rule says "pre-1840 attire at all times," for example.

"The women made most of the clothing," joked Rhonda. "I do all of the beadwork."

C. E. showed me a pair of handmade Indian moccasins. I noticed

the thin soles. "Not much protection for the bottom of the feet," I noted, recalling the stone bruises of my barefoot youth in the country.

C. E. grinned knowingly. "You have to have tough feet." The moccasins, of course, are ideal for stalking or moving quietly.

Both Rhonda and C. E. have Indian blood in their background. "I was telling one of my uncles about hunting in buckskins and shooting flintlocks," said C. E. "You come by it naturally," my uncle said. "Some of your ancestors were Cherokee."

"There was Mohawk blood in my family," Rhonda volunteered.

C. E. tans the deer skins to make the buckskin raw material for clothing and teepees. "We use just about all of a deer except the bones," he said. "Sometimes we even make use of the bones."

"I don't hunt, but I enjoy camping and rendezvous and the chance to visit with other wives," said Rhon-



da. "And we butcher deer here in my kitchen after it has been skinned, cleaned, and quartered outside." The Howdyshells live in one of Virginia's top deer hunting counties, and C.E. doesn't have to go far to hunt.

Modern camping gear is strictly taboo among the mountain men. Those teepee poles in the Howdyshell backyard get plenty of use. The teepees are also made of buckskin—or other material appropriate for the period being recreated.

"Use sleeping bags?"

"Definitely not. We roll up in blankets or some other frontier sleeping material."

"Patch quilts are fine," added Rhonda.

Coleman camp stoves, the cooking unit of the modern campgrounds, is conspicuously absent in the camps of the mountain men. "We cook over open fires only."



Opposite and above: To many hunters, muzzleloader hunting is little more than an extension of deer season. But to men like C. E. Howdyshell, Jr. and Jim Berry, it's a way of keeping in touch with a rich hunting heritage all Virginians should be proud of.

Most of the cooking is done in a dutch oven. None of the modern camping gadgets are allowed. That's the code of the mountain men.

To many hunters, muzzleloader hunting is little more than an extension of the deer season, an opportunity to get in more hunting time. To the mountain men, however, it's much more. It's an effort to slip back in time and relive colorful periods in our history. Active historians, you might say, they attempt to recapture for a day or so some of the rich culture of our ancestors, those hardy men and women who were forever pushing westward dependent upon their flintlock rifles for survival. No hunter ever appreciated his firearm more.

That's the spirit of the modern mountain man dressed in buckskin and armed with a primitive but trusty muzzleloader. □

Bob Gooch is a freelance writer and frequent contributor to Virginia Wildlife.

Preserving in bronze what we're losing in the wild

An Endangered Species Series by Turner Sculpture

Continuing to capture the essence of Virginia's endangered species in bronze, David Turner of Turner Sculpture has created the third in his Endangered Species Series to raise funds for Virginia's Nongame and Endangered Species Program.

Turning to the wind-swept beaches and mudflats of his native Eastern Shore, David has chosen to capture the spirit of the delicate, yet spritely piping plover in bronze. Perfectly camouflaged among the speckled beaches, the piping plover can disappear from view in an instant, blending into the landscape with the help of its sand-colored body, black collar, and a black nick of a crown between the eyes.

This federally endangered shorebird is teetering on the brink of extinction, and every year we hold our breath hoping to see signs of recovery. One-quarter of the East Coast piping plover population nests on the beaches of Virginia's barrier islands, struggling to increase its numbers amid the hardships of habitat loss, nest destruction, and predators hungry for a meal of eggs or tiny young.

Like the Northern flying squirrel (featured above) and the sold-out Bewick's wren sculpture, a limited edition of 200 piping plovers will be cast and sold solely to benefit Virginia's Nongame and Endangered Species Program, the program responsible for the management and protection of all the Commonwealth's rare and endangered wildlife. The money raised from the sale of the three sculptures will provide the program with over 1/10th of its present operating budget.

Each sculpture has a purchase price of \$325. Turner Sculpture will receive \$175 to cover their production costs, while the remaining \$150 will be sent to the Virginia Department of Game and Inland Fisheries as your contribution to Virginia's Nongame and Endangered Species Fund. A tax advisor should be consulted regarding the personal tax deductibility of this contribution. Each piece sold will include a certificate of origin and a letter confirming your contribution to the future of Virginia's wildlife.

You may order either the piping plover or the Northern flying squirrel by sending a \$325 check for each signed and numbered sculpture to: Turner Sculpture, Box 128, Onley, VA 23418. For credit card orders, call: 804/787-2818.

Note: if you have already purchased a Bewick's wren or Northern flying squirrel and would like the same limited edition number in the piping plover, please send in your order as soon as possible.

Photo of piping plover approximates actual size.



Northern flying squirrel (height: 7 inches)
by David Turner.



TURNER
SCULPTURE



Nongame and Endangered
WILDLIFE PROGRAM
VIRGINIA DEPARTMENT OF GAME AND INLAND FISHERIES

W GALLERY



Wood ducks by Dennis Burkhart

"I grew up with a fishing rod and shotgun in my hands," says VW Gallery featured artist Dennis Burkhart. "My father was an outdoorsman, the whole family loved the outdoors. Once October hit, every Saturday night would be spent picking pheasants in our home."

It makes sense that the 41-year-old artist would choose wildlife as his subject, even though during a short stint in art school he was advised to turn to a more lucrative subject. "I just didn't feel I could do that," said Denny. "When I thought about depicting things that held fascination for me, it wasn't drawing a Ford or a GM car."

It was the natural world that held Denny's interest, but it wasn't something that could pay the bills without some serious commitment and sacrifice. At 29 years old, Denny began to work part-time on his art. ("I started thinking that I wasn't

getting any younger.") For the next 12 years, he used the early morning hours, late nights, and weekends to promote his work. He first completed a few paintings and prints, then began working the regional art show circuit.

Finally, four years ago, with a break from the international giftware design market, Denny was able to devote himself full-time to his art. He creates designs for placemats, coasters, cannisters, teapots, and other giftware items for companies such as Pimpernell, Potpourri Designs, Keller & Charles, and Kristin Elliott Greetings.

Denny also has found a niche for his art in foreign postage stamps. In this collector's market of tiny pieces of art, Denny views his work as more of a "design project than painting," challenged as he is to produce works which will be reduced to postage stamp size. He has designed and illustrated postage stamps for Uganda, Gambia, Lesotho, Sierra Leone, and Nicaragua. He recently completed 64 stamp designs featuring birds of West Russia for Belarus.

Denny finds himself in the woods at every opportunity, and always has, particularly during waterfowl season. "When it come to composing a painting," says Denny, "I do a brief pencil sketch. When it comes to reference, most of what

I paint is pulled from memory."

In the mid-70s, he pursued taxidermy for a while, and learned "what an animal is like from the inside as well as from the outside." When he was 13, Denny began tying his own flies. "I've used so many feathers, I know what each feather looks like."

A long-time supporter of conservation efforts, Denny's work has been used to benefit Ducks Unlimited, The Ruffed Grouse Society, The Rocky Mountain Elk Foundation, and Trout Unlimited. He has completed about a dozen different prints, most of which have been done in collaboration with the Pennsylvania Ducks Unlimited chapter for fund-raising efforts.

And Denny is no newcomer to *Virginia Wildlife*. In fact, you might say *Virginia Wildlife* gave him his first real vote of confidence that propelled him into a career as a full-time illustrator. When he first sent a submission to the magazine in 1983, he thought to himself, "You know, I can do as well as the other folks whose paintings are featured in the magazine." And sure enough, his print was chosen to grace the cover of the September issue that year. With that, Denny took the first step toward making a career of his art.

Now, Dennis Burkhart is at a full run with his career, and *Virginia Wildlife* is still cheering him on.



Green
by D.



Red teal
Burkhardt

Prime Time Fishing

by Harry Murray

The same chilling breezes of October which seem to tell our streamside foliage to adorn itself with its most colorful attire also cool our streams, sparking a feeding frenzy by the trout. This is anxiously anticipated by serious trout anglers throughout the Old Dominion, for it affords some of the finest fishing of the year in a variety of streams.

For example, many of our small mountain headwater streams which were quite low and tough to fish late in the summer are now revitalized by September rains. This increased water level apparently permits the trout a degree of security which, when coupled with the cooler water, definitely sparks their feeding. Additionally, the brown trout and brook trout both spawn in October and November, necessitating an increase in their feeding in order to sustain themselves through this period. In order to supply these demands by the trout, Nature continues to furnish the diversity of terrestrial insects she provided all summer, but now she boosts this bounty with some very dense hatches of aquatic insects.

In order to take advantage of this fine action, let's first consider some of the productive tactics for the small headwater streams. Next, we'll examine what works on the larger streams. Then, we'll list some of the most productive areas.

One aspect which makes fall trout fishing so special to me in the mountain streams is the trout's willing-



Dwight Dyke

Expanded fall trout stocking provides great opportunities for anglers willing to adjust their tactics during this spectacular time of the year.

Fall is the time to fly fish for trout.

ness to feed upon the surface. Although at times they may appear to be greedy, they are by no means gullible, and they feed in a very cautious, methodical manner. The degree to which we can blend our tactics to meet their whims will govern our success.

For example, I approach each pool very carefully and try to stay hidden from the trout as I scan the water in an attempt to find them on their feeding stations. Recently, such a ploy revealed 11 different feeding brook trout, each strategically located on the spot of his choice, in a long flat pool high in the Blue Ridge Mountains.

Actually, seeing these trout is not as difficult as one may assume. Polarized glasses and a hat with a dark under-brim are great aids, but fre-

quently the trout give themselves away.

The trout's movement is one of the quickest giveaways of his location. No, I'm not talking about those which race up through the pools after we practically scare the fins off them by approaching them too closely. Rather, I'm talking about those subtle movements we detect as a trout turns slightly to intercept some drifting morsel of food underwater, or maybe even as he relocates slightly on his feeding station. Frequently, this movement is manifested to us as a fleeting reflection of light off his side or possibly a quick glimpse of the light inner part of his mouth as he intercepts a drifting nymph.

Another feature that helps us see the trout is the difference in his color and shading from that of the bottom over which he is lying. Something as simple as a dark, elongated shape over a light sandy bottom, prompting further investigation, may lead you to the best trout you've hooked all season.

A slight spin-off of this which helps me spot hundreds of trout each year is the shadow a trout throws on the bottom. In bright sunlight, many trout blend perfectly with the stream bottom over which they hold, but their shadows seem to jump out at us.

After you have located your trout, you have certainly improved your odds, but I firmly believe he still has the upper hand. After all, he has not survived this far into the season by being stupid.

Our goal now is to carefully move





Bill Lea

As the colors turn and the leaves start to fall in our mountain streams, the savvy angler can take advantage of small leaf dams to catch trout. Dropping a Crowe Beetle or a McMurray Ant just above trout rising inches upstream of the leaves may trigger a productive strike.

into a casting position without scaring him. And, yes, this may mean going in on our hands and knees. Once I'm located, I pause momentarily to be sure I haven't spooked my trout. Then I strive to make my first cast perfect. I do not want to have to make repeated casts to accurately hit my target or to get a natural drift. Such added commotion usually heightens his caution level, and even if he doesn't leave in a flash (make that a *splash*), he may be very tough to take.

In certain pools in small mountain streams, I frequently will not be able to spot the trout. In this case, I try carefully to locate each potential feeding station as I work up the pool. That is, I always stay low and make several casts into the tails of the pools before proceeding on up into the main parts of the pool. I real-

ize that releasing a trout here may permit him to race up through the pool spooking the others, but in the fall one should strive to always return the trout to the same pool in which he was caught. Releasing him into the pool below, as we do earlier in the year, may be putting him or her in a pool in which spawning would be unsuccessful. I once saw a beautiful large female brook trout working frantically over a solid ledge-bottom pool in an attempt to sweep out a workable spawning bed—it didn't work.

After some of the leaves have fallen onto our stream, we are presented with one of my favorite, and often most productive, trout-fishing setups. Frequently, the current pushes these leaves to the tails of the pools, forming miniature leaf jams. These structures are not stur-

dy enough to actually stop the water which gently percolates on through. However, they momentarily slow the flow enough for the surface immediately above them to act as miniature collecting reservoirs which slow and hold any of the vast array of insects drifting down the stream.

There are two different options for fishing these leaf dams. If the current is fast enough immediately in front of the dam to bring the insects to the trout at a frequency which satisfies them, they will hold just inches upstream of the leaves and sip in their meals as the stream delivers them. The angling tactics here are straightforward, and we can often take several nice trout very easily by watching for rise forms and dropping a fly such as a Crowe Beetle or a McMurray Ant just above them.

The second tactic is called for if the pool is wide and the current is too slow to deliver the trout's dinner fast enough to suit them. Here, the fish go out in search of their food, cruising just beneath the stream's surface. This presents a more demanding situation for us, but personally I feel it is a more gratifying contest. Now we must slip back to the tactic of actually seeing the trout before making our presentation. Once the trout is sighted, the fly should be delivered about a foot in front of his cruising path.

As the water temperature drops below 40 degrees in November and December, the trout in our small mountain streams need less food and usually leave their fair-weather feeding stations to hold in the deeper parts of the pools.

They are still catchable, but now I get my best action with nymphs drifted right along the stream bottom. The upstream dead-drift tactic is the best ploy, for this assures a natural fly action—just like a real insect. And, it prevents spooking the trout since they are facing upstream into the current.

The trout's strike is often very subtle underwater, so I like to place several Scientific Anglers indicators along my leader to alert me to the take. When I detect it, I instantly set the hook with my line hand as well as the rod, hopefully before he can detect it as a phony and eject it.

Now for our larger trout streams. Due to an expanded fall stocking program by the Department of Game and Inland Fisheries, we can now experience excellent trout fishing in our larger streams (some of the best of which are listed in box at right).

Some of these streams provide good dry fly-fishing, prompted by the emergence of small olive mayflies. There is the potential for several different species, but the *Baetis vagans* and mayflies of the genus *Pseudocloeon* are the ones I see most often, the former is a size 18 and the latter a size 24. Admittedly, I usually fish either a Mr. Rapidan Parachute or a Baetis Parachute for both hatches and manage to fool a

fair number of trout. These hatches are at their best on heavily overcast days and I've even hit great numbers during light snows. Obviously, one would not use a dry fly this small just to blindly fish the water, but would reserve this tactic for trout actually spotted feeding upon the real insects.

If the hatches of Chironomidae midges become dense enough, these also will prompt the trout to feed upon the surface, but since they are so tiny, the trout usually seem to want hordes of them before they commit themselves to serious surface feeding. However, there are exceptions when individual fish are willing to rise to these delicate tidbits, so just keep an eye out for their rise forms. Once I spot trout rising to midges, I taper down to 7X or 8X and delicately drift a Rod's Flash Midge dry over him.

The large trout streams almost al-



Harry Murray

Popular Streams Included in Fall Trout Stocking

Stream	Location
S. Fk. Holston River	Smyth County
Lower Pedlar River	Amherst County
Tye River (main)	Nelson County
Maury River	Rockbridge County (Goshen Pass)
Big Stony Creek	Shenandoah Co.
North River	Augusta County
South River	Waynesboro City
Back Creek	Bath County
Numerous headwater mountain streams	Jefferson & George National Forests

ways fish well underwater with nymphs and streamers. If the stream is carrying a moderate water volume and I feel I can wade and fish downstream without scaring the trout, I'll work streamers down and across stream and slowly strip them along the stream bottom. An especially productive area is right where the riffles flow into the main pools. This interface is often fairly uniform, enabling me to swim my streamers almost directly across stream perpendicular to the current. Since the trout lie here facing into the current, this ploy will show each one my fly. They may be too smart for me, but at least I'll know they have seen my streamer.

If the current is excessively heavy and I feel I may not be getting my streamers down to the bottom with the down and across stream tactic, I use the upstream dead-drift nymphing method similar to the one I use in the mountain streams. Occasionally, the currents in the larger streams are heavier than those in the small streams, and I may have to use heavier nymphs or place a size BB split shot six inches above it in order for my nymphs to ride naturally along the bottom. Since I must see these strikes on my indicators as mentioned previously, I try to fish a short line, preferring never to make casts over 30 feet long. It is foolish to make longer casts, get the strike and then miss the fish, when by wading a few feet closer, one could control the shorter drift better and catch the trout.

The heavy pocket waters, where strong currents zip around underwater boulders, will often yield some large trout to size 8 Bitch Creek nymphs and Casual Dress nymphs fished upstream in this manner.

As you can see, fall is by no means the time of the year to stow away your trout tackle. Rather, it is the time to revitalize it with new leaders and fresh flies and search out the frolicking trout in all the grandeur fall affords. □

Harry Murray is a frequent contributor and among other pursuits, he teaches fishing and fly-tying in Edinburg, Virginia.



Dwight Dyke

A Tra

by Steve Ausband

Dr. Bill McCarthy's home in Halifax County is, you might say, oriented toward archery, hunting, and the outdoors. At the end of a long drive, flanked by a wooden fence and pastures, you come to the yard around the house. What catches your eye is not the horses in the pasture near the house but the 3-D archery targets scattered about the lawn. Here you see a white-tail, there an elk, over there a javelina, and around back a black bear. They all look, on closer inspection, *well used*.

Inside the restored farmhouse are trophies and mementos of local and far-away hunts with gun and bow. On one wall is the nice buck Bill's wife Hogan took several years back on a neighboring farm. Over a doorway there is an antique arrow with an iron head—a souvenir from China. In a case are carvings from the Inuit. Books and videos on hunting line the bookcases. In a corner stands an old lemonwood bow ("My mother's," Bill says. "I wouldn't dare string it now, after all these years"), and a

couple of very early recurves. Bill's hunting bows hang on a rack near the entrance to the den, the trophy room. The bows are bare, a recurve and a longbow, both by Black Widow. There is a clean and business-like look about them, but they are demanding. No one picks up a longbow, even a finely crafted one

hunter, it was more challenge. He enjoys getting close—really close—to his quarry. If he gets a shot, that's fine. If he goes all season without a shot, that's fine too. He enjoys being out there, and he thinks he gets more mileage out of any deer he takes with traditional equipment. But Bill McCarty is the first hunter I've met

My face must have shown my doubt. I have hunted with both, and I have a lot more confidence in the compound. Still, we were sitting in his den, with the mounted trophies he had taken all along the walls: bear, goat, deer, and cougar, among others. Many were bow kills. McCarty was the third person admitted

ditional Bow Hunter

like a Black Widow, and shoots it with the ease expected of a compound. I had come to Bill's house specifically to ask him why he hunted with the things.

It wasn't hard to get the conversation around to hunting. In fact, it would have been hard to talk about something else, with all the hunting memorabilia lying and hanging about. Bill's children were eager to comment on the trophies. "That's a Cape Buffalo," the little boy said. "And that's a kudu." The youngest child had nothing to say about the trophies, but he marched into and out of the room blowing on an elk whistle. It was a merry den—and a merry din.

I nodded toward the Black Widow. "Why do you prefer that?" I asked. I guess I expected some sort of sentimental answer, some nostalgia for the simpler days. His answer surprised me.

"Because it works better for me," he said.

I know several guys who have gone over—or gone back—to traditional archery equipment during deer season. They are all good hunters, and each has his own reason for leaving the high-tech compounds and pin or pendulum sights behind and taking up the bare longbow or recurve. For one hunter, who is part Cherokee, I think it was mostly a matter of getting back to something he felt was basic in his own nature, something he didn't want to lose, or lose touch with. For another

who has gone back to using a recurve because he thinks it works better—at least for him—than even the most sophisticated compound.

"In a lot of hunting situations," Bill told me, "the recurve or the longbow is actually superior to the compound."

Dr. Bill McCarty of Halifax County has taken a traditional approach to bow hunting seriously, and has the results to show for it.



Dr. Bill McCarty of Halifax County takes aim at one of the many 3-D targets he has set up in his front yard. McCarty was the third person admitted to the Boone and Crockett Club as an archer, following Fred Bear.

to the Boone and Crockett Club as an archer. (The second was the legendary Fred Bear.) I always hate to argue with success.

"Don't you think a guy with a compound is more accurate?" I asked. "I mean in terms of absolute accuracy, not just the ability to hit something the size of a pie plate."

"The compound is more accurate for most archers most of the time," he said. "But you can't measure paper-punching accuracy against hunting situations. In a tree stand, in heavy foliage, you can shoot a bare bow (a recurve or a longbow without sights) more quickly, more quietly, and from any angle. And at hunting ranges, it is plenty accurate."

You can't go making statements like that without having to shoot a few arrows to back them up, and Bill knew it. So he grabbed the recurve and a couple of arrows and we walked out into a drizzle of rain.

"I shoot just a couple of arrows at a time," he said. "And always at ranges about like what I expect to have in the woods. And never at paper." He nocked an arrow and nodded toward a 3-D target, a whitetail buck about 15 yards away. He drew, held a half second, and released. One smooth motion, as natural as throwing a rock. The arrow struck about two inches behind the shoulder and about four inches above the bottom of the chest area; a real deer would not have gone 30 yards.

"I notice you're shooting Zwick-



ey broadheads," I said. They would have been hard not to notice. Zwicky's are big, heavy, two-edged heads that more resemble spear points than the fancy ballistic heads with replaceable blades one most often sees in sporting goods stores.

"I've had good luck with Zwicky's," he answered, pulling one out of another 3-D target (also in the kill zone). "They're tough, they sharpen easily, and they really penetrate well. Shooting broadheads all the time is better practice for hunting. I practice a little bit every day, almost always with broadheads. Sometimes I shoot these 3-D targets, sometimes I go stump shooting, but I almost never shoot at paper targets from known ranges. That's an artifi-

cial situation and doesn't help much with hunting."

He shot the elk, a javelina, and a turkey, then the whitetail a couple of more times before we went back inside. He was dissatisfied with one hit. It was a little low, a heart shot. "Luck," he said. "I was really aiming a bit higher, for the lung area." The ranges were from 10 to 20 yards.

Granted, 20 yards is not a long shot; we were not stretching the abilities of any decent archer. Still, what I noticed (besides the perfectly satisfactory accuracy at that range), was that the shots were inevitably smooth and quick. Not hurried, but a lot quicker than the ones I would have gotten off with a compound and a set of sights. To emphasize his

point about shooting from angles, Bill held the bow almost sideways, leaned over uncomfortably, and skewered his target. It would take some awfully dense foliage to get in the way of a shot like that.

Back inside, we talked about Bill's experience with archery and hunting. He began bow hunting in 1959, using a Bear recurve. Later, when compounds became popular, he used one, and he had pretty decent success with it. Several years ago, though, he went back to the recurve, using a sight pin for a little while, but abandoning it after several months in favor of a purely instinctive shooting style.

"I concentrate on the tiniest part of my target," he said. "Almost on



Mastering a bare bow requires much more practice and persistence than the popular compound. However, some bowhunters find that the recurve and longbow lend themselves to tricky situations in the field that a compound can't handle.

when I was using compounds." He laughs easily. "Of course, there are a lot more deer around now than there were when I was shooting compounds, so that has something to do with it. And I have matured as a hunter, and that has made a difference, too. I know more now than I used to know."

He also believes, though, that many of the shots he has made with the bare bow he could not have taken with a compound. Not that the shots were long; all were under 20 yards, and several were less than 10. The compound is a better instrument for long-range work. But the recurve and longbow lend themselves to tricky situations.

"A couple of years ago I took four deer during the season with the recurve. Three were bucks. They were all very close to me, and I could place the shots exactly where I wanted them. Three of them I saw fall, and the fourth one I heard fall, just out of sight in heavy brush. But the point is, one of those was taken to my right, one was taken to my left while I was sitting, one straight out in front, and one off at an angle to my left. At least two of those shots I could not even have attempted without angling the bow and shooting instinctively. I could not have done so with a compound."

For bow hunters wanting to make the switch back to traditional equipment, Bill recommends not trying to go too heavy.

"You may shoot a 65 or 75-pound compound bow, but you won't be able to shoot accurately with that much poundage in a traditional bow without working up to it. Fifty pounds is probably O.K. for most people. Sixty or 65 is probably pushing it. You need to get used to holding that much weight at full draw without losing your concentration."

For that matter, McCarty sees little use in trying to go to an extremely heavy traditional bow. Bow hunting is a short-range affair. That's what makes it a challenge. No bow is going to shoot like a rifle, not even the fastest compound made, and every archer needs to realize the limitations of his equipment.

A traditional bow weighing about 50-60 pounds, shooting a heavy arrow with a well-designed broadhead, and used at sensible ranges, is not only a challenge to the skill of the hunter and archer, but also a very effective and humane way of harvesting deer and other big-game animals.

"I had a custom-built take-down bow, a recurve, on a trip out West with me a few years ago," Bill said. "The bow had two sets of limbs, one set about 52 pounds and the other about 60. Well, I had a fall and cracked some ribs, and I couldn't shoot the bow with the heavier limbs. So I put on the lighter limbs and had a successful hunt. You don't need an enormous amount of power; you just need adequate power and accuracy."

You also need to shoot a lot of arrows before the season comes in. Anyone planning to hunt with any kind of archery equipment should know exactly what he can and cannot do with his bow. Chuck Adams, the internationally renowned archer, uses a compound exclusively, but he has advice that applies to any bow hunter, no matter what kind of equipment he uses. Adams recommends making a circle about four inches in diameter and shooting at it. That's not a very big target. Think of shooting arrows at a coffee mug sitting on a stump. When you can hit the four-inch circle every time, you are ready to hunt at that range. If the range is 12 yards, then you're a 12-yard hunter. Then back up and try it at a little longer range. By hunting season, you should know how far away you can be and still make a clean shot.

Not many people can hit a target like that with a bare bow once the range gets much beyond 10 yards. For a competitor on the range, such a limitation would never do. But for a hunter, maybe it's not so bad. Bill McCarty thinks it's just fine. □

Steve Ausband is an avid sportsman who squeezes in time for his duties as chairman of the English Department at Averett College in Danville.

Hunter Education Championship Results

Over 100 hunter education graduates converged on Appomattox to participate in the 1994 Virginia Youth Hunter Education Championship at Holliday Lake 4-H Center this year. Sponsored by the Department of Game and Inland Fisheries, volunteer hunter education instructors, 4-H leaders, game wardens and Game Department employees set up and run events in hunter responsibility and wildlife identification, archery, rifle, shotgun and outdoor skills.

The championship is open to all hunter education graduates meeting the championship requirements and age groups. Age groups consist of Junior (age 12-14) and Senior (15-19).

This year's top hunters are:

Senior Team

First Place: Augusta County

Jason Shirey, Tim Rankin, Michael Burnett, Brian Shifflet, Lee Coffman, Joe Eckard.

Coach: Bill Painter.

Second Place: Powhatan County

Stephen Humphreys, Scott Lawson, Joey Ray, Chris Krammes, Rich Baltimore. Coach: Larry Schmitt.

Third Place: Lunenburg and Notoway Counties

Edwin Foster, William Johnson, Robby Bolling, Laura Williamson, Kristie Martin. Coach: Dennis Stulz.

Junior Team

First Place: Appomattox County

Matthew Sandman, Justin Hilbers, Jeffrey Baldwin, John Cook, Ben Mawyer.

Coach: Robert Tillotson.

Second Place: Culpeper County

Eric Hale, Anna Richardson, Justin Hitchcock, Russell Haynie. Coach: John Dodson.

Third Place: Powhatan County

Mary Daniels, Diana Daniels, Sarah Daniels, Jason Barham,

Michael Burress.
Coach: Deanna Coffey.

Individual/Seniors

First Place

Stephen Humphreys/Powhatan County

2nd Place

Joey Ray/Powhatan County

3rd Place

Joe Eckard/Augusta County

Individual/Juniors

First Place

Jared Hemp/Augusta County

Second Place

Justin Hitchcock/Culpeper Co.

Third Place

Russell Haney/Richmond Co.

Partners in River Access Agreement Signed

A memorandum of understanding that will lead to the development of 14 river access points along the James, New, and Roanoke Rivers has been signed by representatives of the Appalachian Power Company (APCO), Virginia Department of Conservation and Recreation (DCR) and the Virginia Department of Game and Inland Fisheries (VDGIF). The signing ceremony held on the banks of the James River at Joshua Falls formally established the \$500,000 Partners in River Access Program.

The partnership, believed to be the only one of its kind, calls for APCO to provide \$165,000 and the use of two parcels of their land for the development of the access points. An initial check for \$82,500 was presented during the signing ceremony. The two state agencies will secure \$295,000 to purchase land and develop access sites.

The agreement calls for nine New River sites to be developed, including portages at APCO's Buck and Byllesby Dams in Wythe and Carroll counties. Portages at the Niagara

Dam in Roanoke and an Explore Park launch will be developed on the Roanoke as will three sites on the James in the vicinity of Lynchburg. Nearly 50 miles of the three rivers will now be accessible from this partnership.

The partnership resulted when the release of studies demonstrating need for river access in the area coincided with the Federal Energy Regulatory Commission's licensing of hydroelectric dams on the three rivers. Part of the licensing process involves the utility proposing public recreational improvements in the area of their projects.

Traditionally, these improvements are made on the impoundment or reservoirs created by the dams. Studies by both DCR and VDGIF showed a need for river access all along the streams, not only in the impoundment area.

DCR approached APCO about carrying out their recreational proposals made within its license applications so that they were consistent with the state's planning efforts.

Joshua Falls is one of several areas to be developed on APCO lands. When completed, the site will provide a concrete boat ramp for both cartop and trailered boats. It will also provide parking for 10 vehicles, 28 vehicle/trailer spaces and two handicapped parking areas. □

Deborah Waterfowl Show

The 8th annual Deborah Waterfowl Show will be held on November 25-26, 1994 at the Chincoteague High School in Chincoteague Virginia. The juried exhibition of decoys and wildlife art is sponsored by the Chincoteague Island, Virginia Chapter of the Deborah Hospital Foundation. Cost is \$2.00 per person, per day. Children under 12 are free with accompanying adult.

Hours are 3 p.m. to 9 p.m. on the 25th and 9 a.m. to 7 p.m. on the 26th. Proceeds will benefit the Deborah Heart and Lung Center of Browns Mills, New Jersey. For more information, contact Jean Boggs Clark at 804/336-3478. □

Sportsmen Told To Be Proud and Optimistic

The grass isn't always greener on the other side of the fence, according to one 25-year veteran of anti-hunting battles.

In comments recently delivered before the Annual Conference of the Outdoor Writers Association of America, in Orono, Maine, Robert Delfay, president of the National Shooting Sports Foundation (NSSF), told the assembled writers, "We must not dismiss the challenges facing our sports, but neither must we dismiss our strengths. The forecasts of hunting's demise were not true 25 years ago, and they are not true today." Delfay pointed to the growth and vitality of pro-hunting organizations, a significant increase in women's participation in hunting and shooting, the exceptional stability and dedication of the shooting sports participant and the economic strength of the industries serving hunting and shooting as reasons for optimism.

"My intention in making these comments is not to present a view of hunting's future as seen through rose-colored glasses," Delfay emphasized. "Indeed, with NSSF's headquarters positioned between New York City and Boston and too close to Washington, D.C., the view we regularly receive about hunting and shooting is anything but rosy. But, despite these negative influences, we constantly see many reminders of the strength and vitality of our hunting and shooting traditions, and we feel it is appropriate—and important—to remind ourselves of our strengths and strong points.

"If one were to blindly accept the prognosis for hunting forwarded by today's sensationalist media, the

outlook would indeed be discouraging," Delfay said. "The average urban citizen may easily be led to believe that animal rights groups and gun control laws are encroaching upon the rights of hunters, and that hunting is an inevitable victim of the

ditional," Delfay said. "We are the happily married couple with kids who actually like them. That may not be very exciting—it may not make headlines—but that doesn't mean it isn't very strong. And very valid.

"But, despite all of these disturbing realities, we at NSSF are also continually reminded of the awesome traditions and advantages we have as hunters and shooters and that is the message I believe we need to be reminded of every once in awhile."

On our side, we can count the National Wildlife Federation, the NRA, the Wildlife Management Institute, Ducks Unlimited, Game Coin, Safari

Club International, Mzuri Wildlife Foundation, the North American Hunting Club, the Pope & Young Club, the National Shooting Sports Foundation and many others. Each has its strong and, perhaps, its weak points. But, I'm sure our enemies wish any or all of these groups did not exist.

"And then there are groups like the Rocky Mountain Elk Foundation, National Wild Turkey Federation, Whitetails Unlimited, Quail Unlimited, the Foundation for North American Wild Sheep, Pheasants Forever, The Wildlife Legislative Fund—and many others too numerous to mention here—to whom I apologize for being unable to mention in the limited time allowed. These groups have all come into being relatively recently and will clearly contribute to the vitality of our sports in the future."

"We should consider what an imposing adversary we must be to those who have been trying, with notable failure, to close us down," Delfay commented. "On our side of the fence, we have some of the best-known and most widely circulated



Gary Carter

transition from traditional values to more modern and simplistic lifestyles. As is so often the case, however, this perception does not square with reality."

"Like many hunting supporters, we at NSSF shake our heads at the fact that so much of the news about hunting and gun ownership these days needs to be negative," he said. "But, in a time when 'good news' translates into 'no news' as far as the networks are concerned, that's a fact of life we must attempt to deal with. Controversy and sensationalism are the hot buttons of today's media. Can you imagine Oprah or Donahue inviting a traditional, happily married couple—with children who actually like them—as guests on one of their shows? Not on your life. Instead, they dream up shows that take an obscure and lurid slice of America—like mothers dating their daughters' husbands—and portray it as worthy of our attention. The more sensational and provocative, the better. It's about ratings. It has nothing to do with truth. And that is both our problem and our strength.

"We are the truth. We are the tra-

magazines in the nation. Our adversaries have nothing to rival *Field & Stream*, *Outdoor Life*, *Sports Afield*, *North American Hunter*, *Petersen's Hunting* and the rest of the fine publications which monthly speak in defense of our sports and promote their relevance and enjoyment to millions of potential outdoorsmen and outdoorswomen. And what about the hundreds—or maybe it's more like thousands—of daily and weekly newspaper, radio and television accounts of hunting's acceptability. Wouldn't our adversaries like to have a similar professional communications network?"

"If there is strength in numbers then one of our greatest strengths surely comes from the 30 million Americans who regularly and enthusiastically take part in the hunting and shooting sports," Delfay said. "That includes about 14.5 million people who hunt only. It includes nearly 9 million who hunt and target shoot and nearly 7 million who only target shoot."

"Another area from which considerable optimism can be gleaned is the increased interest women have shown in hunting," Delfay said. "In the past decade, the number of women taking part in hunting has tripled from 640,000 to nearly 2,000,000."

"And the increase is more dramatic in the target shooting sports where more than 1.5 million women now take part in shotgun shooting and more than 3 million are actively involved in rifle and pistol shooting. We welcome these new participants and the dramatic evidence they provide—to the media and to their friends—that our sports are appropriate, enjoyable and legitimate activities with a definite place in a modern society."

For all of their highly charged rhetoric, there is scant evidence that anti-hunters have swayed the opinions of the average American regarding hunting. In a 1990 Gallup Poll, 77 percent of the American public said they opposed the efforts of animal rights groups to ban hunting. Ninety percent opposed the ani-

mal rights tactic of hunter harassment. "Despite the negative image that hunting too often receives from the media, it seems that Americans can make their own informed decision regarding hunting," Delfay said.

In conclusion, Delfay noted, "None of us at National Shooting Sports Foundation are oblivious to the challenges facing the hunting tradition. But, we do feel it is very important and appropriate to sit back from time to time and look at the many, many positive factors working in favor of our hunting tradition and the future of the shooting sports. It would be a mistake to be arrogant about our strengths, but it would be a larger mistake not to recognize and be thankful for them." □

Letters

I would like to commend you for the informative and intriguing article on snakes in the June, 1994 issue by Joseph C. Mitchell. It was one of the best I have read on those beautiful, fascinating creatures—good old-fashioned natural history, no sensationalism, just science.

I say this as one who came from a rural background where snakes were viewed as something to be killed on sight, and I regret to say I have done so. However, unless human safety is in immediate jeopardy from a poisonous species, I will never kill another snake. I often say that one has developed a true love for Nature when snakes are no longer viewed with fear and loathing. Articles like yours should help people reach that stage of development. Nor do I consider myself an animal-rights supporter. In fact, I view sport hunting and fishing, when done properly, as among the more wholesome and meaningful activities people can engage in. But I do not condone the wanton destruction of creatures like snakes out of ignorance and prejudice.

Patrick Alther
Charlottesville

We used to receive *Virginia Wildlife* magazine and enjoyed it very much. Didn't realize how much until a copy came across my desk to a friend. And at a perfect time because of the article, "The Battle of the Sexes," by Dr. Joseph C. Mitchell (June, 1994).

For the last two summers we have had a black snake living in our birdhouse just 20 or 30 feet from our house. Snakes still scare me to death but somehow this snake and I have an understanding: "You don't bother me and I won't bother you." I gave orders to the men roofing our house, "Don't kill my pet." They saw it come out and sun itself during the day as they worked.

On May 22, when we returned home after visiting our sister in the hospital, our snake had company.

Oh, no, not two! But, yes, we had two. As we watched the two snakes, we decided that they were mating. My sister got out her movie camera and we took a movie. I wish Dr. Mitchell could see it. After reading this article, we know we caught the snakes in the act. What worries me now is how many babies can we expect? One snake isn't so bad but two or more? I haven't seen our snake for about a week. Maybe the bigger one was the female as he says in his article and the other (our snake) has followed her trail and will live happily ever afterwards back in the woods somewhere.

Just thought I'd like to share this with you. Thanks, for the article. I'll send my sister in Georgia, a copy of the June issue and I'll keep the other. It was her camera we used.

Shirley B. Pool
Blackstone

Dr. Joe Mitchell responds:

Black rat snakes lay 5 to 15 eggs usually in June. The eggs incubate in a mulch pile or similar warm and moist environment for about 60-70 days and then hatch in late August through September. But, why worry? They're harmless! By the way, male black rat snakes are larger than females as male combat has been documented for this species.



by Col. William Antozzi, USA Ret., Boating Safety Officer

Boating Under Bridges

Virginia boaters go under many bridges without giving them much thought. Nautical charts show bridges and specify their clearances. Boaters should be aware, however, that the horizontal clearances shown are not as great as the figures indicate. The reason is that some, which supposedly open to a vertical position, do not raise to a full vertical (that is, straight up and down), but lean inward somewhat. The most common of those are the bascule bridges, such as London's Tower Bridge, which has a roadway opening in the center, and the halves raised to permit ship passage. The roadways are counterbalanced to facilitate raising and lowering as required. The name, bascule, comes from the French word for seesaw.

Some bascule bridges are single lift-span and others are double lift-span. If the raised portion of the bridge opened to a truly vertical position of 90°, there would be no problem, but some open to a position of only 60°. The reasons for not opening to straight-up positions are many and varied. Some bascule bridges were not designed to open fully. Bridge tenders sometimes open only one span of a double-span bridge because that is all the space required for a small boat to pass through. Equipment failure due to age and poor maintenance is a contributing factor in many cases. Weather ex-

tremes and power failures are other causes. Capricious operation by bridge tenders can also cause bridges to open only partially. Whatever the cause, the horizontal clearances for bridges shown on nautical charts are not always the clearance available to a transiting vessel.

The National Transportation Safety Board has recognized the problems and has issued recommendations to the Coast and Geode-

tic Survey regarding nautical chart information. The U. S. Coast Guard has directed the owners of bascule bridges to remeasure the openings and provide correct updated and correct information for nautical charts and related publications.

Restrictive clearance measurements are being published in "Bridges Over Nautical Waters of the United States Completion Reports." Those reports are reviewed by Coast and Geodetic Survey cartographers. In addition, the following cautionary note will be added to all of their nautical products depicting or providing information on bascule bridges.

Caution Bascule Bridge Clearances for

Bascule Bridges Whose
Spans Do Not Open to Full
Upright or Vertical Position.
Unlimited Vertical Clearance
is not Available for the
Entire Charted Horizontal
Clearance.

The bottom line is:
*Boater Beware —the bridge
clearance shown on the chart
may not reflect the actual avail-
able clearance.*

Note: Some of the
information contained in
this article was obtained
from NOS, C & G Survey,
Nautical Charting Division,
Mapping and Charting
Branch, Cartographic
Order 002/92. □



Virginia boaters should use caution when consulting nautical charts regarding available bridge clearances. You may not have the clearance you think you do. Photo by Lee Walker.

Habitat

by Nancy Hugo

Goldenrod

We welcome back Nancy Hugo's well-loved "Habitat" column in this issue of Virginia Wildlife.

Sometimes the things we see most often are things we see least well. Goldenrod is a case in point. For example, most people would sum up goldenrod as a plumey, yellow, fall-blooming, roadside weed that causes hay fever. But much of that description is misleading, and part of it is wrong.

Let's get the hay fever myth out of the way first. Goldenrod does not cause hay fever. Please tell five people that before you go to bed tonight. I'm tired of taking wildflower arrangements to people who tell me I'll have to leave the arrangement on the back porch because goldenrod makes them sneeze. In truth, there may be a few highly sensitive individuals (people allergic to roses) who have an allergic reaction to goldenrod pollen, but the pollen primarily responsible for hay fever is ragweed pollen, not goldenrod. It's the light, wind-borne pollens that bedevil hay fever sufferers; goldenrod has relatively heavy pollen carried by bees and butterflies, not by wind. Because ragweed, with its inconspicuous, green flowers, blooms at the same time goldenrod does, goldenrod has gotten a bad rap.

It's also a mistake to think of all goldenrods as having "plumey" blooms. The goldenrod I see most often, *Solidago canadensis*, does have clusters of flowers on arching branches that look like plumes, but goldenrod takes lots of other forms. In addition to plume-like goldenrods, there are wand-like goldenrods, flat-topped goldenrods, club-like goldenrods, and elm-branched goldenrods. All 35 species of goldenrod in Virginia take one of those five forms, but they're still not easy to identify. To be convinced that all goldenrods are not alike, check out

the 14 pages of goldenrods in Peterson and McKenny's *A Field Guide to Wildflowers of Northeastern and North-central North America*.

Even the common names of goldenrods testify to the wealth of what to look for in these plants. There's a rough-stemmed goldenrod, a blue-stemmed goldenrod, and a goldenrod with an angled stem called the zigzag goldenrod. Sweet goldenrod (*S. odora*) has leaves that smell like



Goldenrod isn't just a roadside weed, and it doesn't cause hay fever! Staff photo.

anise when crushed; seaside goldenrod (*S. sempervirens*) blooms you-know-where. There's an early goldenrod, *S. juncea*, that blooms as early as June (proving not all goldenrods are "fall-blooming"), and a late goldenrod, *S. gigantea*, that's still blooming in November. There's even a goldenrod that isn't golden. Silverrod (*S. bicolor*) has a grayish stem and white or cream-colored flowers.

Summing up goldenrods as roadside weeds also underestimates them. Yes, goldenrod grows along roadsides, in poor soils, and in abandoned fields. That's why there's more goldenrod in North America now than there was when the settlers landed. But goldenrods also occupy bogs, barrens, meadows, woodlands, and gardens. The English, who knew a good thing when they saw it, were quick to send gold-

enrod back home when they discovered it, and it has been a treasured garden plant in Northern Europe ever since. In England, no one would think of banishing goldenrod to the back porch; there it graces tables in fine hotels.

I'd be satisfied just to get goldenrod into more American gardens, because not only is it a beautiful plant in the landscape, it's also a great wildlife plant. Goldfinches, juncos, and sparrows eat goldenrod seeds, and the flowers are an important nectar source for honeybees and butterflies. Wildlife gardener Robert Dennis reports having seen 16 species of butterflies nectaring at goldenrod, and it's easy to see why. When I look at the way the plumes of my Canada goldenrod radiate out from the central stem, what I see is an elaborate series of runways (think Atlanta airport) inviting a butterfly landing. Goldenrod is particularly valuable to migrating monarchs because it blooms as they're winging their way south.

Garden uses of goldenrod are myriad. You can make a mini-meadow of plants like goldenrod, asters, boneset, and ironweed, or use it as a backdrop for shorter plants in the regular border. Give it plenty of room, equally aggressive neighbors, or occasional root pruning, because most species spread. Goldenrod grows in just about any soil and will tolerate a surprising amount of shade.

All this and medicinal, too. Fevers, snakebites, cramps, burns, and "wounds within" are all ailments that have at one time or another been treated with leaves, flowers, or roots of goldenrod. The plant's genus name, *Solidago*, means "to make whole" or "to heal." Goldenrod powder was once imported to London for its healing power.

Yellow roadside weed, indeed. □

Recipes

By Joan Cone

Wood Ducks—Lovely To Look At, Delightful To Eat

Along with teal, the earliest of migrants, wood duck populations have been restored by sportsmen who successfully provided nesting boxes over water to replace the old hollow trees which have mostly vanished. These puddle ducks, including mallards and blacks which follow them, are among the most delicious of all waterfowl.

For the following meal, you will need the breasts of three to four wood ducks, eight teal, or three to four mallards and blacks. After removing the breasts, skin, debone and split them so that each waterfowl provides two nice pieces of breast for the following recipe.

Menu

Pumpkin-Corn Chowder
Duck Wellington
Quick Spanish Rice
Carrots And Snow Peas With Maple Syrup And Pecans
Spiced Fall Pears

Pumpkin-Corn Chowder

1/4 cup margarine or butter
1/4 cup chopped onion
1/4 cup biscuit baking mix
1/4 teaspoon ground nutmeg
1 can (14 1/2 ounces) chicken broth
2 cups mashed cooked or canned pumpkin
1 cup half-and-half
1/8 teaspoon red pepper sauce
1 can (8 ounces) whole kernel corn, undrained

Heat margarine in 3-quart saucepan until melted. Cook and stir onion in margarine over medium heat until tender, about 5 minutes; stir in baking mix and nutmeg. Remove from heat and gradually stir in chicken broth. Heat to boiling over medium heat, stirring constantly. Boil and stir 1 minute; reduce heat. Stir in remaining ingredients. Heat to boiling over medium

heat, stirring until chowder is hot. Makes 6 servings (1 cup each).

Duck Wellington

Louise Scott of Miami, Florida sent me this recipe, and Steve Griggs of Williamsburg provided the duck breasts.

8 duck breasts (2 from each of 4 ducks), skinned and deboned
1 tablespoon salad oil
1 package (17 1/4 ounces) Pepperidge Farm frozen Puff Pastry Sheets
1/2 pound creamy liverwurst
1/4 cup chopped green onion
2 tablespoons chopped parsley
1 egg beaten with 1 tablespoon water

Pound duck breasts slightly to make a flat tenderloin. Lightly brown duck breasts in hot oil and drain; chill. Thaw pastry 20 minutes. Preheat oven to 400°. Stir together liverwurst, green onions and parsley. Spread evenly on top of each breast. On a floured surface, roll each pastry sheet into a 14-inch square. Cut each into four 7-inch squares. Place breast on each square. Brush edges with egg wash. Wrap around breast; pinch edges to seal. Decorate with pastry trimmings. Bake on ungreased baking sheet about 25 minutes or until pastry is golden. If necessary, cover loosely with foil during the last 5 minutes to prevent bundles from overbrowning. Makes 8 servings.

Quick Spanish Rice

1 can (14 1/2 ounces) stewed tomatoes
1 1/2 cups chicken broth
1 1/4 cups uncooked white rice
1 tablespoon margarine or butter
1 to 2 teaspoons chili powder
3/4 teaspoon oregano
1/2 teaspoon garlic salt

In medium saucepan, combine all ingredients. Bring to boil; reduce heat. Cover and simmer 25 minutes

or until rice is done. Makes 6 servings.

*Carrots and Snow Peas With Maple Syrup and Pecans

1/2 pound carrots, sliced thinly
1/2 pound snow peas
1 1/2 teaspoons margarine
3 tablespoons maple syrup
2 tablespoons chopped fresh parsley
2 tablespoons chopped pecans, toasted
1/2 teaspoon cinnamon

Steam or microwave carrots at HIGH just until barely tender, approximately 2 minutes. Drain and set aside. Steam or microwave snow peas until barely tender, approximately 2 minutes. Drain and set aside. In nonstick skillet, heat margarine and maple syrup. Add carrots, snow peas and parsley; cook for 1 minute. Serve sprinkled with pecans and cinnamon. Serves 4.

Spiced Fall Pears

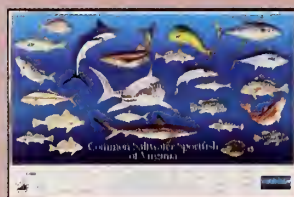
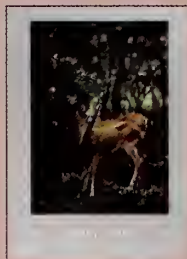
4 ripe pears, peeled and sliced
2 tablespoons brown sugar
1/2 to 1 teaspoon ground allspice
2 tablespoons butter or margarine
1/4 cup orange juice
2 tablespoons honey

Place pear slices in an 8-inch square baking dish. Combine brown sugar and allspice; sprinkle over pears. Dot with butter. Pour orange juice into dish and drizzle honey over pears. Cover tightly with heavy duty plastic wrap; fold back a corner of wrap to allow steam to escape. Microwave at HIGH 6 to 8 minutes or until tender, rotating dish halfway through cooking time. Makes 4 servings.

*Recipe from *Rose Reisman Brings Home Light Cooking*, by Rose Reisman. Published by MCM Books/Wm. Morrow & Co., distributor, May, 1994.

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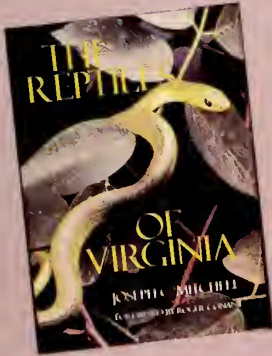
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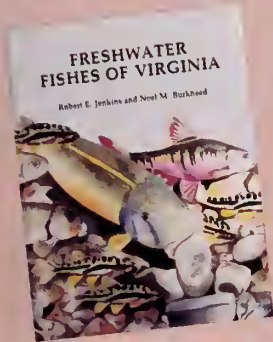
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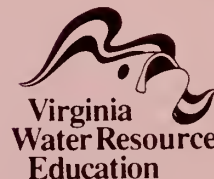
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